IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) A packet switch for switching cells ~~comprising fixed-size data packets~~, said packet switch comprising:

N input ports capable of receiving and storing cells in a plurality of input queues;

N output ports capable of receiving and storing cells from said N input ports in a plurality of output queues;

a switch fabric for transferring said cells from said N input ports to said N output ports, said switch fabric comprising an internally buffered crossbar having NxN internal buffers associated therewith, wherein each internal buffer is associated with a crosspoint of one of said N input ports and one of said N output ports; and

a scheduling controller capable of:

selecting a first one of a plurality of queued head-of-line (HOL) cells from said input queues to be transmitted to a first one of said NxN internal buffers according to a fair queuing algorithm in which each of said queued HOL cells is allocated a weight of R_{ij}; and ~~wherein said scheduling controller is further capable of~~

selecting a first one of a plurality of HOL cells buffered in a second one of said NxN internal buffers to be transmitted to a first one of said output queues according to [[a]] the fair queuing algorithm in which each of said internally buffered HOL cells is allocated a weight of R_{ij}; [[,]]

wherein a group of K queues shares a combined capacity of 1, and

$$\sum_{i=1}^{K} R_i \leq 1,$$

where R_i is [[the]] a guaranteed bandwidth associated with queue i, wherein any queue being non-empty over a time interval T can be guaranteed a bandwidth of R_iT+E, where E is a constant.

2. (Currently Amended) The packet switch as set forth in Claim 1 wherein at least some of said NxN internal buffers are disposed within said switch fabric.

3. (Original) The packet switch as set forth in Claim 1 wherein at least some of said NxN internal buffers are disposed within said N input ports.

4. (Original) The packet switch as set forth in Claim 1 wherein at least some of said NxN internal buffers are disposed within said N output ports.

5. (Currently Amended) The packet switch as set forth in Claim 1 wherein said NxN internal buffers are configured within said N output ports such that each output port has a fast internal speed-up of N output buffer that is shared at least partially by cells from all input ports.

6. (Currently Amended) A communication network comprising a plurality of packet switches capable of transferring data in cells ~~comprising fixed-size packets~~, wherein at least one of said packet switches comprises:

N input ports capable of receiving and storing cells in a plurality of input queues;

N output ports capable of receiving and storing cells from said N input ports in a plurality of output queues;

a switch fabric for transferring said cells from said N input ports to said N output ports, said switch fabric comprising an internally buffered crossbar having NxN internal buffers associated therewith, wherein each internal buffer is associated with a crosspoint of one of said N input ports and one of said N output ports; and

a scheduling controller capable of:

selecting a first one of a plurality of queued head-of-line (HOL) cells from said input queues to be transmitted to a first one of said NxN internal buffers according to a fair queuing algorithm in which each of said queued HOL cells is allocated a weight of R_{ij}; and ~~wherein said scheduling controller is further capable of~~

selecting a first one of a plurality of HOL cells buffered in a second one of said NxN internal buffers to be transmitted to a first one of said output queues according to [[a]] the fair queuing algorithm in which each of said internally buffered HOL cells is allocated a weight of R_{ij}; [[,]]

wherein a group of K queues shares a combined capacity of 1, and

$$\sum_{i=1}^{K} R_i \leq 1,$$

where R_i is [[the]] a guaranteed bandwidth associated with queue i, wherein any queue being non-empty over a time interval T can be guaranteed a bandwidth of R_iT+E, where E is a constant.

7. (Currently Amended) The communication network as set forth in Claim 6 wherein at least some of said NxN internal buffers are disposed within said switch fabric.

8. (Original) The communication network as set forth in Claim 6 wherein at least some of said NxN internal buffers are disposed within said N input ports.

9. (Original) The communication network as set forth in Claim 6 wherein at least some of said NxN internal buffers are disposed within said N output ports.

10. (Currently Amended) The communication network as set forth in Claim 6 wherein said NxN internal buffers are configured within said N output ports such that each output port has a fast internal speed-up of N output buffer that is shared at least partially by cells from all input ports.

11. (New) A packet switch, comprising:

a plurality of input ports capable of receiving and storing cells in a plurality of input queues;

a plurality of output ports capable of receiving and storing cells from the input ports in a plurality of output queues;

a plurality of internal buffers, each internal buffer associated with one of the input ports and one of the output ports; and

a scheduling controller capable of:

selecting one of a plurality of queued head-of-line (HOL) cells from the input queues to be transmitted to a first one of the internal buffers according to a weight allocated to each of the queued HOL cells; and

selecting one of a plurality of HOL cells buffered in a second one of the internal buffers to be transmitted to one of the output queues according to a weight allocated to each of the internally buffered HOL cells.

12. (New) The packet switch of Claim 11, wherein the scheduling controller is capable of using a fair queuing algorithm to select the queued HOL cell and to select the internally buffered HOL cell.

13. (New) The packet switch of Claim 11, wherein a group of K queues shares a combined capacity of 1.

14. (New) The packet switch of Claim 13, wherein each queue in the group of K queues has a guaranteed bandwidth such that:

$$\sum_{i=1}^{K} R_i \leq 1$$

where R_i is the guaranteed bandwidth associated with an i^{th} queue in the group of K queues.

15. (New) The packet switch of Claim 14, wherein any queue being non-empty over a time interval T is guaranteed a bandwidth of R_iT+E, where E is a constant.

16. (New) The packet switch of Claim 11, wherein at least some of the internal buffers are disposed within a switch fabric comprising an internally buffered crossbar.

17. (New) The packet switch of Claim 11, wherein at least one of:

at least some of the internal buffers are disposed within the input ports; and

at least some of the internal buffers are disposed within the output ports.

18. (New) A method, comprising:

receiving and storing cells in a plurality of input queues;

transferring the cells from the input queues to a plurality of output queues using a plurality of internal buffers, each internal buffer associated with one of the input queues and one of the output queues; and

receiving and storing the cells from the input queues in the plurality of output queues;

wherein transferring the cells comprises:

selecting one of a plurality of queued head-of-line (HOL) cells from the input queues to be transmitted to a first one of the internal buffers according to a weight allocated to each of the queued HOL cells; and

selecting one of a plurality of HOL cells buffered in a second one of the internal buffers to be transmitted to one of the output queues according to a weight allocated to each of the internally buffered HOL cells.

19. (New) The method of Claim 18, wherein a group of K queues shares a combined capacity of 1.

20. (New) The method of Claim 19, wherein each queue in the group of K queues has a guaranteed bandwidth such that:

$$\sum_{i=1}^{K} R_i \leq 1$$

where R_i is the guaranteed bandwidth associated with an i^{th} queue in the group of K queues.

21. (New) The method of Claim 20, wherein any queue being non-empty over a time interval T is guaranteed a bandwidth of R_iT+E, where E is a constant.

22. (New) The method of Claim 18, wherein at least some of the internal buffers are disposed within a switch fabric comprising an internally buffered crossbar.

23. (New) The method of Claim 18, wherein at least one of:

at least some of the internal buffers are disposed within input ports; and

at least some of the internal buffers are disposed within output ports.

24. (New) A communication network comprising a plurality of packet switches, at least one of the packet switches comprising:

a plurality of input ports capable of receiving and storing cells in a plurality of input queues;

a plurality of output ports capable of receiving and storing cells from the input ports in a plurality of output queues;

a plurality of internal buffers, each internal buffer associated with one of the input ports and one of the output ports; and

a scheduling controller capable of:

selecting one of a plurality of queued head-of-line (HOL) cells from the input queues to be transmitted to a first one of the internal buffers according to a weight allocated to each of the queued HOL cells; and

selecting one of a plurality of HOL cells buffered in a second one of the internal buffers to be transmitted to one of the output queues according to a weight allocated to each of the internally buffered HOL cells.

25. (New) A computer program embodied on a computer readable medium and operable to be executed by a processor, the computer program comprising computer readable program code for scheduling transfers of cells from a plurality of input queues to a plurality of output queues using a plurality of internal buffers, each internal buffer associated with one of the input queues and one of the output queues, the computer readable program code for scheduling the transfers comprising computer readable program code for:

selecting one of a plurality of queued head-of-line (HOL) cells from the input queues to be transmitted to a first one of the internal buffers according to a weight allocated to each of the queued HOL cells; and

selecting one of a plurality of HOL cells buffered in a second one of the internal buffers to be transmitted to one of the output queues according to a weight allocated to each of the internally buffered HOL cells.